0045

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

September 21, 2007

TO: Internal File

THRU: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Steve K. Christensen, Environmental Scientist/Hydrologist

RE: Revisions to Add Degas Wells G-18, G-31 and AMV Road, Canyon Fuel Company, LLC., Dugout Canyon Mine, C/007/0039, Task ID #2846

SUMMARY:

On September 5, 2007, Canyon Fuel Company (the Permittee) provided the Division of Oil, Gas and Mining (the Division) with a formal response to the first technical analysis of the proposed construction of methane degasification wells G-18, G-31 (degas wells G-18 and G-31) and a 7,155 foot long access road. The initial amendment was given the Task ID #2828 for tracking purposes. The following analysis has been assigned a review number of Task ID #2846.

The proposed degas wells and access road will provide additional methane gas venting above the area of longwall panel GIL-6. The Permittee has provided the hydrologic calculations and information relative to culvert design and sizing, stockpile runoff volumes, and stockpile runoff containment.

The hydrologic information provided in the Methane Degasification Amendment Wells G-18, G-31 and Access Road application (the application) meets the requirements of the State of Utah R645-Coal Mining Rules. The application should be approved at this time.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GENERAL

Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

Analysis:

The application meets the hydrology requirements for general information as provided in R645-301-721. Beginning on page 7-1 of the application, the Permittee provides references to the sections of the approved MRP that describe the hydrological resources in the gob vent hole project area. Figure 7-1 of the MRP shows a generalized hydrostratigraphic cross section of the permit area as well as the proposed well site. Plate 7-2 of the MRP depicts the locations of surface-water bodies and existing or pending water rights. In addition section 724 of the MRP provides baseline information for the permit area including the proposed degas well site.

Findings:

The hydrologic information provided meets the requirements of R645-301-721-Environmental Description.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.18; R645-301-724.

Analysis:

The application meets the hydrology requirements for Climatological Resource Information as provided in R645-301-724. Page 7-4 of the application provides a reference to Appendix 4-1 of the approved MRP and RA Attachment 7-5 of the Refuse Pile Amendment where climatological data is provided.

Findings:

The hydrologic information provided meets the Climatological Resource Information requirements as provided in R645-301-724.

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

Geologic information related to degas wells G-18, G-31 and the proposed access road is presented in Chapter 6 of the application as well as in Chapter 6 of the approved MRP.

Findings:

The information provided meets the Geologic Resource Information requirements as provided in R645-301-724.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Analysis:

Sampling and Analysis

Page 7-3 of the application provides a reference to Section 723 of the approved MRP in regard to Sampling and Analysis. Section 723 of the approved MRP states that water samples will be collected and analyzed according to the methods outlined in "Standard Methods for the Examination of Water and Wastewater" and 40 CFR parts 136 and 434.

Baseline Information

The application provides a reference to Section 724 of the approved MRP. Section 724 of the approved MRP provides baseline information for the permit area (including the proposed sites for gob gas vent holes G-18, G-31 and the proposed access road).

Baseline Cumulative Impact Area Information

The application meets the Environmental Description requirements for Baseline Cumulative Impact Area Information (CHIA). The cumulative impact area (CIA) currently in

place for the Dugout Canyon Mine covers the proposed gob vent hole locations and the information required for the Division to develop a Cumulative Hydrologic Impact Assessment (CHIA) is presented in the approved MRP. In Section 725 on page 7-4 of the application, chapters 6 and 7 (of approved MRP) are referenced. Chapters 6 and 7 of the MRP provide the hydrologic and geologic information required by the Division to develop a CHIA.

Modeling

The application meets the Environmental Description requirements for Modeling. No groundwater monitoring was conducted in preparation for the gob vent hole installations.

Probable Hydrologic Consequences Determination

The application meets the hydrology Environmental Description requirements for Probable Hydrologic Consequences (PHC) as provided in R645-301-728.300. Page 7-5 thru 7-10 of the application discusses the subsections of the probable hydrologic consequences regulations. The probable hydrologic consequences are further discussed in detail in Section 730 of the MRP. Appendix 7-2 provides the groundwater monitoring data acquired from a spring and seep survey of the area. Appendix 7-3, Section 3 contains a Mayo and Associates PHC report that provides hydrologic information for the permit and adjacent area (including the G-18, G-31 and proposed access road locations).

Potential impacts to the hydrologic balance

The application meets the hydrology Environmental Description requirements for potential impacts to the hydrologic balance as provided in R645-301-728.310. Page 7-10 of the application states that little to no impacts to the hydrologic balance are anticipated due to 1) the potential impacts are limited to the drilling and construction of the wells; 2) best technology currently available (BTCA) techniques for sediment control will be implemented to minimize the surface disturbance; 3) ground water information provided in the MRP demonstrates that minimal groundwater is located in the area of the proposed degas wells; and 4) any water encountered during the drilling and construction of the well will need to be sealed from the well in order for it to function as an ambient vent of methane gas. The Permittee has indicated that during the advancement and operation of the seventeen previous gob gas vent holes, minimal amounts of ground water were encountered. Baseline data provided in the MRP supports this assertion.

Acid or Toxic Forming Materials

The application states that no acid or toxic forming materials have been identified in the soils or strata of the Dugout Canyon Mine. The application references Appendix 6-2 of the

approved MRP that outlines the finding that the Dugout Canyon Mine area does not contain potentially acid forming or toxic material. The application also references Chapter 6, Section 623 of the Methane Degasification Amendment, which states, "No acid or toxic forming materials will originate at the well sites."

Sediment Yield

The application meets the hydrology Environmental Description requirements for sediment yield impacts as provided in R645-301-728.331.

Page 7-7 of the application provides a discussion as to the hydrologic resources in the area of the proposed degas wells and access road. One small seep, SC-96, has been recorded a short distance down gradient of a portion of the proposed access road. Six more springs are located up gradient from the proposed drill pads and access road. It is unlikely the construction and operation of the road and drill pads will produce impacts on these nearby water resources. Sediment control techniques and design plans are provided in Chapter 5, Attachment 5-4 and in Chapter 7, Attachment 7-1. The first page of Attachment 7-1 provides a table outlining the various sediment control techniques to be utilized during construction and operation.

During construction and operation of the degas wells and access road, a combination of silt fence, containment berms and culverts will be utilized to provide sediment control and reduce the likelihood of disturbed soil from entering the drainage adjacent to the road.

Water Quality

The application meets the requirements of R645-301-728.332. On page 7-9 of the application, the Permittee discusses the potential for water quality impacts as a result of the proposed construction and operation of the degas wells and access road. Due to the sediment control structures to be installed during the construction and operation of the degas wells and access road, the potential for an increase in total suspended solids to the receiving drainages will be minimized. In addition, the Permittee discusses that the dissolved solids within the runoff from the disturbed areas is not likely to noticeably increase above background levels since the disturbance will occur in an area with weathered soils and exposed bedrock at the surface. The soil samples obtained and analyzed for the proposed project are presented in Attachment 2-1. Upon review of the soil data, it appears that the obtained samples do not contain significant volumes of highly soluble minerals. In addition, no significant volumes of highly soluble materials are proposed to be imported as part of the construction, operation and reclamation of the road and pads.

Ground-water and surface-water availability

The application meets the hydrology Environmental Description requirements for ground water and surface-water availability as provided in R645-301-728.334. Page 7-6 and 7-7 outlines the potential impacts to ground water and surface water availability. As outlined in the baseline information provided in the MRP, little ground water is located in the area of the proposed degas wells. If ground water is encountered during drilling, the ground water aquifers will be sealed using drilling mud. Upon the completion of the degas well, the casing will be grouted and cement will be placed inside the well casing during reclamation. The grouting of the casing inside the well hole will effectively prevent ground water from entering into the degas wells. In order for the degas wells to function properly, any encountered ground water must be prevented from entering.

The degas wells have little potential to impact or decrease creek flow or spring discharges. The wells are not designed to capture water, dewater aquifers or cause subsidence. In addition, no measurable water was encountered during the drilling and construction of degas wells G-1 thru G-9.

Potential hydrocarbon contamination

The application states that no hydrocarbon products will be stored at the well sites. However, the Permittee has stated that absorbent materials will be used for the collection of leaked fuels, greases and other oils that may be spilled during the installation of the vent holes. The saturated absorbent materials would then be disposed of at an appropriate landfill facility.

Groundwater Monitoring Plan

Additional groundwater monitoring is not necessary in connection with the construction of gob gas vent holes G-18, G-31 and the access road construction. The baseline data collected for the approved MRP as well as the ongoing groundwater monitoring is sufficient to meet the groundwater monitoring plan requirements for this project. Plate 7-1 of the approved MRP shows the springs and monitoring well locations where baseline information has been obtained and where ongoing groundwater monitoring continues in association with the mining activity. The operational groundwater-monitoring plan has been designed to detect impacts to groundwater resources from mining activity. As such, additional monitoring is not necessary.

Surface-Water Monitoring Plan

Additional surface water monitoring is not necessary in connection with the construction of gob gas vent holes G-18, G-31 and the access road construction. The baseline data collected for the approved MRP as well as the ongoing groundwater monitoring is sufficient to meet the

surface-water monitoring plan requirements for this project. Plate 7-1of the approved MRP shows the stream locations where baseline information has been obtained and where ongoing groundwater monitoring continues in association with the mining activity. The operational surface water-monitoring plan has been designed to detect impacts to surface water resources from mining activity. As such, additional monitoring is not necessary.

Findings:

The hydrologic information provided meets the requirements of R645-301-728-Probable Hydrologic Consequences regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Monitoring and Sampling Location Maps

The application meets the requirements for Monitoring and Sampling Location Maps. Plate 7-1, Hydrologic Monitoring Stations, has been updated to depict the additional surface water monitoring station (PC-3) located at the confluence of the drainage east of the proposed road alignment and Pace Creek.

Subsurface Water Resource Maps

Plate 7-1 (Hydrologic Monitoring Stations) of the approved MRP depicts the subsurface water resources in the vicinity of the proposed gob vent hole site.

Surface Water Resource Maps

Plate 7-1 (Hydrologic Monitoring Stations) of the approved MRP depicts the surface water resources in the vicinity of the proposed gob vent hole site.

Well Maps

Plate 7-1 (Hydrologic Monitoring Stations) of the approved MRP depicts the locations of the monitoring wells within the permit area. Monitoring well GW-19-1 is located approximately ½ to ¾ of a mile west of the proposed gob gas vent hole site for G-19.

Findings:

The hydrologic information provided meets the Maps, Plans and Cross Sections of Resource Information requirements as provided in R645-301-722 and R645-301-731.

OPERATION PLAN

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

Analysis:

Plans and Drawings

The application meets the Plans and Drawings requirements for road systems. Attachment 5-4 in Chapter 5 depicts a typical road cross section. The cross section clearly shows that the road will be sloped (1-2%) towards the hillside. An incised ditch at the toe of the hillside will convey road runoff down gradient to one of three road runoff culverts.

The Permittee provides cross sectional information for the proposed road in Attachment 5-4. Plate 1, Degas Well G-31, G-18 and Access Road, of Attachment 5-4 depicts the proposed road alignment, degas pad locations as well as the locations of the proposed culvert installations. In addition, Plate 1 depicts the road stationing and cross sectional information presented in Plates 2 and 3 of Attachment 5-4. Plates 2 and 3 of Attachment 5-4 depict the pre, operational and post mining topography of the road alignment as well as the well pads. Figure 1 of Attachment 5-4, Typical Road Cross Section, depicts the dimensions of the road prism to be constructed. The road width is depicted as approximately 16' with 1 to 1 and 1 to 0.5 slopes depicted on the cut bank of the proposed access road.

Attachment 5-4 also provides a cross section of the proposed stockpile runoff containment berms. Along with the runoff volume calculation information, the drawing depicts the proposed stockpile and containment berm slopes as well as the bottom and top widths.

Attachment 7-1 provides additional design plans and drawings. Figure 3 provides a plan and cross-sectional view of the culvert installations in Figure 3, Road Runoff Culvert Plan. Figure 3 depicts the outlet details, which include the installation of filter fabric and riprap to provide energy dissipation for storm flow. A cross section is provided that depicts the filter fabric and riprap construction detail for the receiving channel of the culverts.

Attachment 7-1 also provides a silt fence and straw bale dike schematic.

Performance Standards

The application meets the requirements for Performance Standards of Road Systems and Other Transportation Facilities as provided under R645-301-741 and -742.400.

Attachment 7-1 provides the hydrologic calculations utilized in designing the proposed road drainage system and sediment control systems for the well pads, soil stockpiles and access road. The Permittee utilized HydroCad 8.00 software for calculating peak flows and stages in each culvert and ditch to be utilized in the projects drainage system. HydroCad 8.0 employs the Soil Conservation Service (SCS) Method for determining the peak storm runoff volumes to be used in sizing the various components of the projects drainage system. The SCS method incorporates generalized loss-rate and runoff relationships developed from watershed studies in the United States. The SCS method employs a watershed index or curve number (CN) to determine runoff factors. The curve number accounts for infiltration rates of various land surfaces. According to the Watershed Hydrology-Culvert Design table in Attachment 7-1, the Permittee determined the CN based on NRCS soils maps. According to the maps, each watershed (except WS5) contains soils of which half are in Hydrologic Soils Group B and half are in Group C. The weighted average CN is approximately 77, which is reasonable given the poor condition of the surface at the locations of the drill pads and access road. Watershed WS5 contains soils that are all in Hydrologic Soil Group C (CN 82). Attachment 7-1 provides the data utilized for the SCS calculations. In addition, the Permittee provides two maps that depict the watersheds utilized in the drainage system calculations. From these watershed delineation maps, the Permittee obtained slope and acreage data.

The proposed drainage system will utilize 8 culverts (5 culverts for the diversion of ephemeral drainages that intersect the proposed access road and 3 culverts to convey runoff from the road itself). The five ephemeral drainage culverts were sized by utilizing a 10 year 24 hour design storm event. A 10 year 6 hour event was utilized for the sizing of the road runoff culverts. In each instance, the performance standards were either met or exceeded per R645-301-742.333 (Diversion of Miscellaneous Flows) and R645-301-742.423.1 (Road Drainage). Both of the aforementioned regulations call for the use of a 10 year 6 hour event in determining proper sizing and design of various drainage system components. The culvert sizing data and criteria are outlined in Attachment 7-1.

As stated previously, the road drainage system will employ 3 culverts to dissipate and control runoff generated on the road. Plate 1 of Attachment 5-4 depicts the locations of the three road runoff culverts (RRC-1, RRC-2 and RRC-3). Page 7-7 and Figure 3 of Attachment 7-1 indicate that the road will be sloped approximately 1-2% towards the hillside away from the outslope. Runoff generated from the road surface will be unable to run over the containment

berms located on the edge of the road and thus minimize the amount of sedimentation to the adjacent drainage. The road runoff will be conveyed to an incised ditch on the hillside portion of the road prior to being discharged from one of the three road culverts. Riprap channels will be constructed at the outlet of each of the culverts with the exception of road runoff culvert RRC-2. As the peak design culvert velocity (calculated with the required 10 year 6 hour design storm event) is less than 5 feet per second (fps) for culvert RRC-2, a riprap detail at the outlet is considered unnecessary as the velocity is not considered erosive. The remaining culvert outlets will be completed with a filter blanket and riprap channel to provide energy dissipation and thus minimize the amount of sediment to the receiving drainage.

The Permittee provides the soil stockpile containment calculations in Attachment 7-1. As with the ephemeral drainage culverts, a 10 year 24 hour design storm event was used in calculating the storm volumes and berm storage capacities. The berms have been designed to fully contain the 10 year 24 hour design storm event.

Page 5-10 of the application discusses the maintenance plan to be implemented during the construction and operation of the degas wells and access road. The Permittee states, "When necessary during the normal use of the AMV road, it will be graded, berms will be repaired, culverts inlets/outlets and ditches will be cleaned." In addition, the AMV access road will be "repaired as soon as practical following a catastrophic event". On page 7-11, the Permittee further discusses the maintenance of the various drainage and sediment control structures. The silt fences and/or straw bale dikes will be periodically inspected and accumulated sediment will be removed as needed to maintain functionality.

Findings:

The hydrologic information provided meets the requirements of the R645-State of Utah Coal Mining Rules.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Disposal Of Noncoal Mine Wastes

The application states that no hydrocarbon products will be stored at the well sites. However, the Permittee has stated that absorbent materials will be used for the collection of

leaked fuels, greases and other oils that may be spilled during the installation of the vent holes. The saturated absorbent materials will then be disposed of at an appropriate landfill facility.

Findings:

The hydrologic information provided meets the Spoil and Waste Materials Operation requirements as provided in R645-301-747.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, **-301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.**

Analysis:

General

The application meets the requirements for General Hydrologic information as required by R645-301-731. The Hydrologic Information is presented in chapter 7 of the application. The application discusses the potential impacts to hydrologic resources, provides the design criteria and hydrologic designs utilized at the degas site and also provides the applicable hydrologic performance standards for the drainage features at the degas sites.

Groundwater Monitoring

A groundwater-monitoring plan specific to the installation of gob gas vent holes G-18, G-31 and the proposed access road is not necessary. The baseline data collected for the approved MRP as well as the ongoing groundwater monitoring is sufficient to meet the groundwater monitoring plan requirements for this project. Plate 7-1of the approved MRP shows the springs and monitoring well locations where baseline information has been obtained and where ongoing groundwater monitoring continues in association with the mining activity.

Surface Water Monitoring

The application meets the requirements for surface water monitoring as required by R645-301-731.220. The Permittee has established a surface water monitoring point on Pace Creek just below the confluence with the ephemeral drainage adjacent to the proposed access road for degas wells G-18 and G-31. The surface water monitoring point (PC-3) has been added to Plate 7-1, *Hydrologic Monitoring Stations*, of the approved MRP. In addition, a discussion of the monitoring site has been added to the text on pages 7-58 and 7-59. Table 7-5, *Surface Water*

Monitoring Program, of the MRP has been updated to reflect the additional surface water monitoring point on Pace Creek.

Acid- and Toxic-Forming Materials and Underground Development Waste

The application states that no acid or toxic forming materials have been identified in the soils or strata of the Dugout Canyon Mine. The application references Appendix 6-2 of the approved MRP that outlines the finding that the Dugout Canyon Mine area does not contain potentially acid forming or toxic material. The application also references Chapter 6, Section 623 of the Methane Degasification Amendment, which states, "No acid or toxic forming materials will originate at the well sites."

Diversions: General

The application meets the Diversions: General requirements as outlined in the R645-State of Utah Coal Mining Rules. Page 7-10 of the application discusses how five ephemeral drainages will be diverted with the installation of culverts. Attachment 7-1 of the application provides the culvert design calculations as well as design drawings of the culvert installation and outlet detail.

Stream Buffer Zones

The application meets the Operational Plan stream buffer zone requirements as provided in R645-301-731.600. R645-301-731.600 prohibits surface disturbance within 100 feet of a perennial or intermittent stream, unless authorized by the Division.

On page 7-12 of the application, the Permittee outlines the utilization of signs/markers to identify the drainage east of the proposed access road alignment. A buffer zone is required for approximately the first 1,100 - 1,200 feet of the proposed access road. The Permittee will place signs along the road at intervals so that the previous sign is visible at the location of the current sign.

Sediment Control Measures

The application meets the requirements for the Operational Plan Sediment Control Measures to be utilized per R645-301-741 and R645-301-742.411. The Permittee discusses the sediment control measures and provides detailed design plans and drawings in Attachments 5-4 and 7-1 of the application.

The sediment control measures will include, but not be limited to, the use of silt fence, berms, culverts and straw bales. On page 7-16 of the application, the Permittee states,

"Construction activities will not occur during major precipitation events. As required, siltation structures will be installed prior to beginning site construction."

Sediment and erosion control measures will include building water bars on the access road as well as sloping the road surface toward the uphill side of the road to divert runoff into a incised roadside ditch. Native rock will be collected during the construction of the road and will be used as riprap. Culverts will be installed at the intersection of 5 ephemeral drainages with the proposed access road. In addition, 3 road culverts will be installed to divert runoff generated from the road surface to the adjacent drainage. Where required, appropriately sized riprap will be placed at the outlets of the culverts. Attachment 7-1 provides the hydrologic calculations and data used to design the culverts, containment berms and riprap details.]

Silt fences will be placed at the toe of the fill slopes during construction to reduce the amount of loose soil material and sediment laden runoff from entering the drainage. Outslopes and ditches associated with the road will be seeded during operations to stabilize the exposed soil.

The drill pads will utilize containment berms around the disturbed areas and the use of silt fence to treat runoff prior to leaving the pad.

Siltation Structures: General

The application meets the Operational Plan requirements for Siltation Structures: General as provided in R645-301-742.212. The application commits to utilizing berms, silt fences and straw bale dikes to treat runoff. The Permittee has committed to installing siltation structures prior to beginning construction.

Siltation Structures: Other Treatment Facilities

The application provides calculations and design considerations for the relative berm heights and silt fence dimensions for three areas of the pad: the pad stockpile, the upper road stockpile and the lower road stockpile. The berms were designed by utilizing the Soil Conservation Service (SCS) method for calculating peak flows. The SCS method incorporates generalized loss-rate and runoff relationships developed from watershed studies in the United States. A total runoff volume was calculated for the pad area utilizing a 10-year, 24-hour rainfall event as required by state regulations (Other Treatment Facilities--R645-301-742.230). Berm dimensions were then calculated to contain the design storm event for each of the three areas outlined above.

The application provides the calculations utilized in determining the proper silt fence and berm sizing to handle the 10-year, 24-hour storm event.

Impoundments

On page 7-9 of the application, the Permittee states that no permanent impoundments will be utilized at the site.

Findings:

The hydrologic information provided does not meet the requirements for Operational Plan-Hydrologic Information. The following deficiencies need to be addressed prior to Division approval:

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Monitoring and Sampling Location Maps

The application meets the requirements for Monitoring and Sampling Location maps. The Permittee has updated Plate 7-1 (Hydrologic Monitoring Stations) of the approved MRP to depict the additional surface water-monitoring site to be located at the confluence of Pace Creek and the ephemeral drainage located next to the proposed access road.

Certification Requirements

A certified professional engineer registered with the state of Utah has stamped the submitted maps, plans and cross sections.

Findings:

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-

subsoil and topsoil. If it becomes necessary to add gravel to the road surface during the operational phase, it will be left in place and ripped to relieve compaction. Subsoil fill material and topsoil will be placed on top of the ripped surface.

Following reclamation of the road slopes, settling/rills are not anticipated, but should they develop, the small areas will be reworked with hand tolls. If settling/rills occur in a large area, it may become necessary to regrade the entire area.

At the time of reclamation, a determination will be made between the Permittee and the Division as to the "best current technology" for the placement or use of silt fence/strawbales for sediment control along the path of the reclaimed road.

Findings:

The hydrologic information meets the Reclamation Plan requirements for Road Systems and Other Transportation Facilities.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

Analysis:

No additional impacts are expected from the construction of gob vent holes G-18, G-31 and the proposed access road.

Findings:

The hydrologic information provided meets the Cumulative Hydrologic Impact Assessment requirements as provided in R645-301-730.

RECOMMENDATIONS:

The hydrologic information provided in the application does not meet the requirements of the State of Utah R645-Coal Mining Rules. The proposed amendment should not be approved at this time. Deficiencies have been outlined within the text of this analysis and should be addressed by the Permittee prior to Division approval.